REMARKS

Applicant thanks the Examiner for his attention and consideration given to this application.

Claims 7-22, 24-37, 39-50, and 52-59 remain under consideration in the application. In the action, the Examiner rejected each of these claims as anticipated under 35 U.S.C. § 102(e) by Gringeri, et al., U.S. Pat. No. 6,233,226 (referred to herein as "Gringeri").

For the reasons set forth below, Applicant respectfully traverses.

Summary of the Applied Art

Gringeri concerns the problem of how to efficiently deliver video media over an Asynchronous Transfer Mode (ATM) network. Using an ATM connection at a constant bit rate (CBR), in which the rate selected is sufficient to accommodate the highest data rates that will be required at any time during the transmission, is wasteful of resources. On the other hand, if the media is encoded to compress the peak action sequences to fit within a lower CBR rate, loss of video quality may result. See Figure 3A and corresponding discussion beginning at col. 11, line 17.

Gringeri et al. devised a two-phase method to address this problem, taking advantage of the Variable Bit Rate (VBR) mode of the ATM protocol, which allows a user to contract for a base SCR, but makes provision to send bursts of data (in exchange for "tokens") at a Peak Cell Rate (PCR) higher than the SCR. Gringeri's two-phase approach comprises an "analysis phase" and a "transmission phase."

The analysis phase is conducted on the entire video sequence prior to transmission. (Col. 11, lines 52-54.) In the analysis phase, the most advantageous ATM parameters are calculated, keyed to the particular media content, to permit an efficient SCR to be selected, with the ability also to use a higher PCR rate where required during the transmission. Col. 11, lines 49-63. Further optimization results from planning transmission during the analysis phase to smooth out peak transmissions by taking

advantage of user-side buffering available during adjacent intervals in order to pre-send some of the peak data. Col. 11, lines 36-41.

The analysis phase of Gringeri uses server-side computer models of both the network and the user's decoder buffer to help perform these calculations. Col. 11, lines 54-57. The analysis phase is discussed in detail in connection with Figure 5 of Gringeri. See discussion beginning at col. 13, line 32. In addition to selecting the SCR and PCR to be used for transmission, a Maximum Sustained Burst Size (MBS_s) is also calculated in the analysis phase (Col. 14, lines 17-18).

After the analysis phase is completed, the transmission phase begins. In the transmission phase, the SCR, PCR and MBS_s determined in the analysis phase are used to set up an actual ATM connection. Then, the actual video media data is transmitted over the ATM connection (see col. 11, lines 49-53).

The transmission phase of Gringeri is discussed in detail in connection with Figure 10, beginning at col. 22, line 6. As in the analysis phase (Figure 5), the transmission phase in Gringeri (Figure 10) also relies on a server-side ***model*** of the user decode buffer. In the transmission phase, transmission of the video data proceeds in accordance with a server process that is designed to initially fill the user buffer at the specified SCR, and thereafter alternates between the SCR and PCR data rates during transmission to make optimal use of the ATM connection. See Figure 10.

Principles of law

Anticipation under 35 U.S.C. § 102 requires that each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *In re Robertson*, 169 F.3d. 743, 745 (Fed. Cir. 1999). "[R]ejections under 35 U.S.C. § 102 are proper only when the claimed subject matter ***is*** identically disclosed or described in 'the prior art.'" *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972) (emphasis in original). For a proper 35 U.S.C. § 102 rejection, the prior art "reference must clearly and unequivocally disclose the claimed [invention] or direct those skilled in the art to

the [invention] without ***any*** need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference." *Id.* (emphasis in original).

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic ***necessarily*** flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (BPAI 1990) (emphasis in original). Inherency may not be established by probabilities or possibilities, and the mere fact that a certain result "may" follow from a given set of circumstances is not sufficient. *MEHL/Biophile Int'l Corp. v. Milgraum*, 192 F.3d 1362, 1365 (Fed. Cir. 1999); *In re Oelrich*, 666 F.2d 578,581 (CCPA 1981).

First basis for traversal with respect to all claims

In making the present rejections, the Examiner referred to "the embodiments of Gringeri cited in the previous office action." Action at page 4, lines 1-2.

There were in fact two prior office actions in this case that cited Gringeri, one dated October 3, 2008 and the other dated May 6, 2009. The disclosures of Gringeri that the Examiner cited in those actions were Figures 2, 4, and 5, and the corresponding text.

While the Examiner relies herein on features of Gringeri pointed out in the 2008 and 2009 actions referenced above, it should be noted that the claims currently under consideration were amended or added in Applicant's submission dated November 2, 2009, that is, subsequent to the two referenced prior actions on which the examiner relies. In Applicant's November 2, 2009 amendment, language was added to each such claim to recite "initially" filling the user buffer "at a rate more rapid than the rate at which said data elements [or, said streaming media] are played out by said user computer," or, in the case of claims 15-16, "at a rate as fast as the connection between the server and the user computer will allow." This claim language is not addressed by

the Examiner's prior rejections. Applicant respectfully submits that neither the features of Gringeri previously cited by the Examiner, nor any other teaching or disclosure within the Gringeri disclosure, teach this feature.

As noted above, Gringeri discloses a pre-transmission "analysis phase" (as illustrated in Figure 5) and a "transmission phase" (as illustrated in Figure 10).

As can be seen in step S.124 in Figure 10, and in the corresponding text at col. 22, lines 45-46, at the start of the transmission process (i.e. after "initialization" step S.120), Gringeri teaches a transmission process in which "the decoder buffer is pre-filled . . . by transmitting video frames at the SCR." (There are identical statements with regard to Figure 5, but that figure concerns simulated transmission, rather than actual transmission, as in Figure 10.) Step S.124 clearly corresponds to the "initial" filling of the user buffer as recited in Applicant's claims. However, in Gringeri, the fill rate is specified as the "SCR."

The term "SCR" in Gringeri means "Sustained Cell Rate," which Gringeri states is "the long term average rate over an interval" (col. 3, lines 26-27). Gringeri uses a variable bit rate (VBR) transmission technique, employing two transmission rates: the SCR as a base rate, and a higher Peak Cell Rate (PCR) for more demanding sequences. The SCR and PCR are selected at different times during transmission in accordance with the transmission phase flow chart in Figure 10. See col. 3, lines 23-30, and Figure 10, showing alternation between rates at steps S.124 (initial fill at SCR), S.148 (SCR) and S.144 (PCR), as well as the discussion related to these aspects of Figure 10, at col. 22, line 45 to col. 23 line 54.

The SCR, representing the long-term average data rate for the transmission, is the playback rate, or a close approximation thereto.

By contrast, in the traversed claims, the user's buffer is initially filled either at a rate explicitly stated to be "***greater than***" the playback rate, or in the case of two of the claims, as fast as the connection to the user's computer will allow. There is no certainly explicit teaching in Gringeri to initially fill the user's buffer at a rate greater than the

playback rate, or as fast as the user's connection will allow, nor is it at all inherent in the disclosure that this must be the case.

In sum, Gringeri's disclosure of pre-filling the user buffer at the SCR rate fails to identically disclose, either expressly or inherently, using either a rate greater than the playback rate, or a rate as fast as the user's connection will allow, to initially fill the user's buffer. Thus, the disclosure does not anticipate the present claims.

Second basis for traversal with respect to all claims

As a further and separate basis for traversing the present rejection as to all claims under consideration, Applicant submits that Gringeri also does not teach sending at about the playback rate if the user buffer is full. A limitation to this effect is incorporated in each of the claims under consideration. As can be seen at step S.138 and S.140 of Figure 10, if it is determined (from the server-side model) that the decoder buffer is full, "transmission is stopped at step S.140 and the transmission module waits until a frame has been removed from the decoder buffer before retransmitting video data." The corresponding flow chart language in Figure 10 is "SET RATE TO ZERO." This does not meet the stated limitation, either expressly or inherently, because clearly a rate of zero is less than the playback rate. For this additional reason, the disclosure of Gringeri fails to anticipate any of the claims under consideration.

Separate basis of traversal of claims 17-22, 24-37, 39-50, and 52-59

Applicant submits the following separate basis for traversal of the rejections of claims 17-22, 24-37, 39-50, and 52-59.

Each of claims 17-22, 24-37, 39-50, and 52-59 recite "detecting" or "to detect" (depending on the claim) "if the user buffer is full, during the transmission of said media." These claims were added by Applicant's November 2, 2009 amendment. Applicant submits that Gringeri fails to disclose such a "detecting" step or function, relative to the user's buffer, in either the disclosures previously cited by the Examiner,

or in any other part of the reference. Gringeri's non-inclusion of such a feature is a direct consequence of its use of ATM protocols in a VBR mode, which imposes technical limitations that rule out the "detecting" step or function herein claimed.

The VBR ATM transmission service category relevant to Gringeri's disclosure does not provide data to the sender, during the course of transmission, concerning the success of the user's reception, or state of the user's data reception facilities (see discussion of VBR and other ATM service categories at col. 2, line 47 - col. 3, line 9). Rather, Gringeri, ***assuming*** reliable data transport to the destination, makes its transmission rate decisions based on a ***simulation*** that employs an internal ***model*** of the user's decoder buffer. (See col. 22, lines 12-15: transmission state depends on "awareness of the fullness of the decoder buffer model ***assumed*** at the source" (emphasis added).) This simulation is similar in some respects to the simulation performed in the analysis phase (see Figure 5), but differs in other respects. Gringeri makes very clear that during the transmission phase, when it refers to the state of the decoder buffer, it means the state of the server's ***model*** of the user's decoder buffer. *See, e.g.*, col. 22, lines 50-57:

> "[A]fter transmitting each video cell or frame, a determination may be made at step S.124 to determine if the decoder buffer is full. ***This determination is performed based on the parameters defining the decoder model at the source***. For example, by comparing the number of transmitted cells to the buffer size or capacity, it is possible ***to determine*** when the decoder buffer is full." (Emphasis added.)

Claims 17-22, 24-37, 39-50, and 52-59 all recite "detecting" (or, in system or article of manufacture claims, "to detect") "if said user buffer is full, during the transmission of said media."

Applicant respectfully submits that Gringeri does not disclose "detecting" if the "user buffer" is full, as presently claimed. Rather, Gringeri "detects" something

different, which is whether the ***simulated*** buffer in its server-side ***model*** is full. Given the limitations of its ATM connection, this in fact is all Gringeri can do. However, it does not meet the express limitations of the claims, which each require detecting or to detect if the user buffer is full.

Separate basis of traversal of claims 13, 14, 22, 37, and 50

Applicant submits the following separate basis for traversal of the rejections of claims 13, 14, 22, 37, and 50.

In addition to rejecting all of the claims under consideration under Section 102(b) based on Gringeri, the Examiner also noted his disagreement with Applicant's previous separate ground of traversal with respect to claims 13-14. The Examiner's reasoning would appear to apply as well to claims 22, 37 and 50, which were in the application (they were added in November 2009), but which the Examiner did not specifically address. Each of claims 13, 14, 22, 37 and 50 recite a step or function of maintaining pointers into the server buffer for a plurality of users, or a record of the last element that has been sent to each of a plurality of users.

Applicant agrees with the Examiner's statement that "[t]here is no way Gringeri could be modeling every user's video decoder with single model for all users." Action at page 3, lines 7-8. The Examiner states in substance that Gringeri inherently teaches that there is "a different buffer model for each user." Action at page 3, lines 4-5. Applicant agrees that Gringeri teaches, either expressly or inherently, to use a plurality of buffer models to serve a plurality of users. However, Applicant respectfully submits that regardless of whether it is express or inherent, such disclosure, concerning models of a ***user*** buffer, is insufficient to support the present rejection of claims concerning the manner of use of a ***server*** buffer.

To begin with, Gringeri does not disclose a server buffer at all, anywhere in its ten figures and 24 columns of written specification. Gringeri discloses a server-side model of a user-side decode buffer, but neither such a model, nor the user decode buffer it simulates, performs any of the functions of a server buffer as recited in the

subject claims, which is to temporarily store data ***within the server*** that is going to be transmitted to one or more users. The buffer modeled in Gringeri is the buffer in the user system that temporarily stores data it receives from the server, which will be decoded, and played, at the user system.

Gringeri goes into considerable detail concerning how its model of a user buffer is used to regulate transmission speeds. But this teaches nothing at all about how data is selected by the server from a server buffer, which is what is being claimed.

Gringeri itself does indeed explain how its system can handle multiple independent users, but this has nothing to do with server buffer management. According to specific disclosures in Gringeri, the disclosed system can simply be replicated. Specifically, Figure 2 shows "n" users configured to receive video media from a "source" comprising video server 20 and video storage device 24. Gringeri addresses how a plurality of users might relate to one or more sources, at col. 10, lines 3-7:

> "Although FIG. 2 illustrates a single source in the system, more than one video source location may be provided. In addition, it is possible to provide multiple servers and encoders at a source location. . ."

Later, with regard to Figure 4, Gringeri states (at col. 12, lines 10-14):

> "Although only one destination location 14 is illustrated in FIG. 4, it is of course possible to provide a plurality of similarly equipped destination locations that are connected to switch network 22 and are capable of receiving video streams from source 10."

The reference in the latter quote is to video "streams" in the plural. Per the first quote, any given "source" could provide "multiple servers and encoders," thereby creating a plurality of streams.

However, merely teaching to operate a plurality of models as in Gringeri, to regulate transmission so as to serve a plurality of independent users, does not anticipate claims 13, 14, 22, 37, and 50.

Each of claims 13, 14, 22, 37, and 50 recite a single server buffer, from which data is served to plurality of users. Each user is independently served with content, which is found by the server either (for claims 13, 22, 37 and 50) at the location in the server buffer pointed to by the pointer maintained for that user, or (for claim 14) in the next block in the server buffer after the last block recorded as sent to the particular user.

The fact that Gringeri teaches a system that utilizes a plurality of models (of a user's decoder buffer) to regulate transmission to a plurality of users says nothing about how the media data is buffered (if at all) on the server side. In Gringeri, where the analysis phase requires the server's possession of the entire transmission stream before transmission is even begun, buffering is not an issue that the inventors even chose to address in their disclosure. However server-side data ***may*** be buffered in a system implemented in accordance with Gringeri is immaterial, because Gringeri says nothing about it anywhere in the disclosure. Nor is any server buffer management mechanism or operation inherent in the disclosure of Gringeri. Gringeri's transmission phase model tells the server what network speed to use to send the next ATM cell of data, and to send the cell at that speed. This says nothing about where, within any server buffer, that cell's worth of data should be selected from, how to address the next sequential block, and so forth.

In sum, Applicant submits that Gringeri does not contain any disclosure, expressly or inherently, concerning how data is selected from a server buffer to serve a plurality of users, which could support a Section 102(b) rejection of claims 13, 14, 22, 37, and 50.

CONCLUSION

Applicant respectfully requests that the Examiner reconsider the outstanding rejection of claims 7-22, 24-37, 39-50, and 52-59 in light of the foregoing remarks; that the rejection of said claims be withdrawn. As Applicant believes that the application is otherwise in condition for allowance, Applicant accordingly requests that the application, as delineated by said claims, be allowed.

Respectfully submitted,
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